

Claims 1-19 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication 2002/0012521 A1 (Nagasaka et al.).

First, cancellation of Claims 3, 4, 12 and 13 renders the rejections of those claims moot.

The aspects of the present invention that are respectively set forth in the present independent claims, have as their purpose to extract specific scenes that correspond to a scene that is the object of a search, from among a plurality of moving-picture materials, to permit the editing and combination of the specific scenes into a single moving picture.

Independent Claim 1 is directed to an image processing apparatus for processing a moving picture that comprises means for extracting frames constituting an entered moving picture, and means for discriminating a scene change by comparing frames extracted by the frame extraction means. Also provided are means for storing scene-change information relating to the discriminated scene change, and means for designating an image that corresponds to a scene that is the object of a search, as well as means for comparing a scene-change frame, which is obtained by referring to the scene-change information that has been stored in the storage means, and the image that has been designated by the designation means. The apparatus is also provided with means for extracting a scene that corresponds to the image based upon result of the comparison, and output means for editing scenes that have been extracted by the scene extraction means and combining these extracted scenes into a single moving picture.

By virtue of these features, an apparatus constructed according to Claim 1 makes things possible that would not be achievable with prior-art approaches, such as, for example, extracting only highlight scenes, from a plurality of soccer games on a TV program, and outputting them as one single moving picture. as a result, a user can watch successively each of a number of highlight scenes of the soccer games by reproducing this *single* moving picture. Applicant does not believe that the prior art makes such possible.

Nagasaka relates to image retrieval. In the *Nagasaka* approach, images are sequentially input, and features are sequentially extracted from the input images and are converted into a feature series. This series is compressed along the time axis, and stored. Features are also sequentially extracted separately from the images to be retrieved, and compared with the stored and compressed series of features. Image scenes that match are retrieved. As shown in Fig. 16 and described in paragraphs [0053] to [0055], *Nagasaka* provides a window 52 for displaying a list of typical frame images. A typical frame displayed on the window 52 is, for example, the top frame of each cut when an image is divided cut-wise. However, the *Nagasaka* apparatus only controls playback status of images corresponding to each frame displayed on the window 52. Nothing has been found, or pointed out, in *Nagasaka* that would teach or suggest editing and combining specific scenes into a *single moving picture*. The Office Action, while it discusses all the original claims, does not even assert that anything in *Nagasaka* teaches combining scenes into a single moving picture, as recited in original Claim 4, and now recited in Claim 1. In fact, as far as Applicant can see, nothing in that publication would teach or suggest doing so, or

provide any means by which such could be done. For at least that reason, Claim 1 is believed to be clearly allowable over *Nagasaka*.

Independent Claims 10 and 19 are respectively method and memory-medium claims corresponding to apparatus Claim 1, and are believed to be allowable for the same reasons as is the latter claim.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as a reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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VERSION MARKED TO SHOW CLAIM CHANGES

1. (Amended) An image processing apparatus for processing a moving picture, comprising:

frame extraction means for extracting frames constituting an entered moving picture;

discrimination means for discriminating a scene change by comparing frames extracted by said frame extraction means;

storage means for storing scene-change information relating to the scene change discriminated by said discrimination means;

designating means for designating an image that corresponds to a scene that is the object of a search;

comparison means for comparing a scene-change frame, which is obtained by referring to the scene-change information that has been stored in said storage means, and the image that has been designated by said designation means; [and]

scene extraction means for extracting a scene that corresponds to the image based upon result of the comparison performed by said comparison means; and

output means for editing scenes that have been extracted by said scene extraction means and combining these extracted scenes into a single moving picture.

2. (Amended) The apparatus according to Claim 1, wherein said comparison means includes computation means for computing degree of similarity between the scene-change frame and the image that has been designated by said designation means[;], and

wherein said scene extraction means extracts the scene corresponding to said image based upon results of calculation performed by said calculation means.

3. (Canceled)

4. (Canceled).

10. (Amended) An image processing method for processing a moving picture, comprising:

a frame extraction step₁ of extracting frames constituting an entered moving picture;

a discrimination step₁ of discriminating a scene change by comparing frames extracted [at] in said frame extraction step;

a storage step₁ of storing scene-change information relating to the scene change discriminated [at] in said discrimination step;

a designating step₁ of designating an image that corresponds to a scene that is the object of a search;

a comparison step₁ of comparing a scene-change frame, which is obtained by referring to the scene change information that has been stored [at] in said storage step, and the image that has been designated [at] in said designation step; [and]

a scene extraction step₁ of extracting a scene that corresponds to the image based upon result of the comparison performed [at] in said comparison step; and

an output step₁ of editing scenes that have been extracted in said scene extraction step and combining these extracted scenes into a single moving picture.

11. (Amended) The method according to Claim 10, wherein said comparison step includes a computation step₁ of computing degree of similarity between the scene-change frame and the image that has been designated [at] in said designation step[;] , and

wherein said scene extraction step [extracts] includes extracting the scene corresponding to [said] the image based upon results of calculation performed [at] in said calculation step.

12. (Canceled)

13. (Canceled).

14. (Amended) The method according to Claim 10, wherein said designating step [designates] includes designating a pattern image that corresponds to any of a leading, intermediate or final frame of a scene that is the object of a search.

15. (Amended) The method according to Claim 10, wherein said designating step [is capable of] includes designating a number of scenes to be extracted.

16. (Amended) The method according to Claim 10, wherein said designating step [is capable of] includes designating the time of a scene to be extracted.

17. (Amended) The method according to Claim 10, wherein said designating step [is capable of] includes designating a number of scenes to be extracted, with regard to frames prior to and with regard to frames on and after a frame corresponding to the pattern image.

18. (Amended) The method according to Claim 10, wherein said designating step [is capable of] includes designating time of a scene to be extracted, with regard to frames prior to and with regard to frames on and after a frame corresponding to the pattern image.

19. (Amended) A computer-readable memory storing program code of image processing for processing a moving picture, the memory including:

program code of a frame extraction step₁ of extracting frames constituting an entered moving picture;

program code of a discrimination step₂ of discriminating a scene change by comparing frames extracted [at] in said frame extraction step;

program code of a storage step₃ of storing scene change information relating to the scene change discriminated [at] in said discrimination step;

program code of a designating step₄ of designating an image that corresponds to a scene that is the object of a search;

program code of a comparison step₅ of comparing a scene-change frame, which is obtained by referring to the scene-change information that has been stored [at] in said storage step, and the image that has been designated [at] in said designation step; [and]

program code of a scene extraction step₆ of extracting a scene that corresponds to the image based upon result of the comparison performed [at] in said comparison step; and

program code of an output step₇ of editing scenes that have been extracted in said scene extraction step and combining these extracted scenes into a single moving picture.